FINANCING REAL ESTATE DEVELOPMENT

THROUGH RATED COMMERCIAL PAPER:

AN ANALYSIS OF 75 STATE STREET

by

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Bachelor of Science; Architectural Studies
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Submitted to the Department of Architecture
in Partial Fulfillment of the Requirements for the Degree
of
Master of Science in
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at the

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ABSTRACT

This paper explores the changes that have taken place in the real estate capital markets over the past decade, and the new breed of financing instruments that have emerged. The paper focuses on the securitization of to-be-developed properties, and more specifically, the issuance of rated, commercial paper, for construction and permanent financing. As a model for the analysis , a case study of the 75 State Street development in Boston, Massachusetts is presented. This development represents the first time commercial paper was issued on a to-be-built office building, with no pre-leasing, using interest rate swaps to fix the rate.

In analyzing the success of the commercial paper program used on 75 State Street, the evolution of the real estate capital markets is set forth, as are the new financing instruments that emerged under the new capital market structure. The paper attempts to explain why securitization has not been used more frequently on to-be-developed properties and discusses the future of commercial paper programs in real estate development.

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CHAPTER I.

INTRODUCTION

In the past decade, real estate capital markets have undergone dramatic changes. As part of these changes, we have seen a significant shift in the distribution of risks and rewards in real estate, between those parties that had traditionally supplied equity capital and those institutions that had traditionally supplied debt.

The financial volatility that occurred at the beginning of the 1980's caused a new capital market structure to emerge. This structure has produced a new breed of real estate financing vehicles that include; Institutional Partnerships, Participating-Type Mortgages, Accrual Mortgages, and the Securitization of real estate.

Securitization epitomizes the move away from the traditional capital market structure and represents the continuing integration of Wall Street into the real estate industry. However, once touted as the wave of the future, securitization has not lived up to many people's expectations. This is especially true with the securitization of to-be-developed properties.

The purpose of this paper is to examine the securitization of to-be-developed properties and, more specifically, the issuance of commercial paper for construction and permanent

financing. As a model for this analysis, the paper focuses on a case study of the 75 State Street development in Boston, Massachusetts. This development represents the first time commercial paper was issued on a to-be-built office building, with no pre-leasing, using interest rate swaps to fix the rate.

Chapter II presents the case study of 75 State Street and provides a brief history as to the origin of this development. The case study outlines the objectives that the developers established prior to obtaining financing and the commercial paper program that was ultimately used.

Chapter III examines the evolution in the real estate capital markets that has occurred during the past decade. It attributes the reason for the evolution to the ERISA pension legislation established in 1974, and to the financial volatility that has occurred in the 1980's. This volatility was caused by the change in monetary policy in 1979, and the deregulation of banks and thrifts under the new Reagan administration.

Chapter IV looks at the new breed of financing instruments that evolved under the new capital market structure. It analyzes the alternatives that were available to the developers of 75 State Street and offers examples using these alternate financing vehicles in Appendix A and B.

Chapter V examines the use of securitization of to-be-developed properties. It outlines the reasons why the commercial paper program was successful on 75 State Street and why securitization has not been used more frequently. In conclusion, the paper discusses what the future holds for securitization as a financing vehicle for to-be-developed properties.

Limitations

This paper is not intended to provide a complete history of the real estate capital markets or the various financing instruments that are available. Nor is it intended to provide a thorough analysis of all securitization programs and their uses. Rather, the intent is to provide a specific case study, of a to-be-developed property, that employed securitization as a financing vehicle and then analyze the effectiveness of the solution, given the state of the capital markets at the time and the alternatives that were available. In doing so, it attempts to explain the past successes and future dilemmas of using securitization to finance to-be-developed properties.

CHAPTER II.

CASE STUDY: 75 STATE STREET

The financing for 75 State Street is one of the most complex transactions ever done on a to-be-developed property and was named one of the "most innovative financings in 1987" by Pension and Investment Age. (1) The $287 million dollar financing, involved a floating commercial paper issue, which was securitized by third party credit enhancement, with interest rate swaps to fix the rate. Various other interim hedging devices were also used. All of these elements had never before been combined to finance a to-be-built office building with zero pre-leasing. (2)

The 31 story office building, located in Boston's financial district, was developed by a limited partnership which included The Beacon Companies and Equitable Real Estate Investment Management Inc. as the general partners, each owning approximately 40%. A small group of limited partners, including the original landowner and the architect, own the remaining 20%. Beacon and Equitable shared all of the pre-development costs and all of the risks equally. Construction on the 750,000 square foot development, which includes a 700 car parking garage below grade, began in mid-1986 and was completed in early 1989.

The Players

The origin of 75 State Street dates back to 1983 when the City of Boston, under the direction of Mayor Kevin White, wanted to sell several key parking garages to private entities. One of these properties, which they solicited a Request For Proposal (RFP) on, was the Kilby Street garage, which stood on a portion of the property now occupied by 75 State Street. Through the RFP process, the garage was acquired by Harold Brown, a prominent Boston landowner. Brown owned property adjacent to the Kilby Street garage and proposed that the properties be joined in order to develop a first class office building.

To give his proposal credibility, Brown solicited Equitable Real Estate Investment Management Inc. (herein referred to Equitable) who are the independent real estate subsidiary of Equitable Life Insurance Co. Equitable Real Estate is currently the third largest holder of U.S. real estate with over $13 billion in equities. They are also the second largest pension fund advisor, currently advising more than $8.3 billion in assets. (3) Equitable initially intended to only be the financial entity. They were brought in to give Brown the credibility he needed to get through the demanding regulatory process that exists in Boston.

In 1983, Brown, along with Equitable and architect Graham Gund, were tentatively designated by the Boston Redevelopment

Authority (BRA) as the development team for the property. However, shortly thereafter several events occurred which altered the development plan. The first event was the new administration which replaced White in 1984. Under the new mayor, Raymond Flynn, the BRA took a dramatic change of course. The plan for 75 State Street that had received tentative approval was not looked favorably upon by the new administration.

Furthermore, Equitable was not convinced that Brown possessed the necessary expertise to develop a downtown office building. As the financial entity, they were pressuring him to find a partner with more experience. Brown finally decided he wanted out of the deal altogether.

In order to save the deal, Equitable approached The Beacon Companies to join them as co-developer. The Beacon Companies are a privately held real estate concern, developing both commercial and residential real estate. They are based in Boston but have substantial experience throughout the Eastern United States. The Beacon Companies are closely run by the Leventhal family who established the business in 1946 as a Boston construction company. Over the years, Beacon has developed several downtown office buildings and are familiar with the Boston development process.

Equitable was most concerned with the regulatory risks and getting re-designated by the BRA with a new developer. Based on Beacon's experience in downtown Boston, and prior associations that Equitable has had with them, they believed Beacon would be able to get them through the zoning process. Under the new arrangement, Equitable was no longer a financial entity but became co-developers with Beacon. Brown and Graham Gund remained in the new partnership but only as limited partners, with no control over the project.

Equitable believed that the new arrangement significantly reduced the risks they were facing at the time. Beacon would lend development experience to the partnership which would help them weave through the regulatory maze that exists in Boston. They would also contribute their design and construction experience in the redesign of the project. As a general partner, with 40% the capital contribution and upside potential, they had the incentive to develop a profitable project. Equitable saw their move from being just a financial entity to co-developer, as further mitigating their risk. As a general partner they potentially had more liability but they also had more control over the development. It also enabled Equitable to obtain more experience in Boston development for future projects they may want to develop themselves. The move from a debt position to an equity position reduced their financial exposure. The majority of the development cost

would now be funded by a third party source. Equitable did not want to depend on their parent company for financing this venture.

In 1985, Beacon and Equitable were designated by the BRA as co-developers for 75 State Street. They borrowed approximately $80 million to acquire the existing buildings from Brown and the garage from the City of Boston. The loan was non-recourse to the two companies and involved no cross-collateralization. It was secured by the existing structures only..

The Financing Objectives

The financing for 75 State Street evolved out of a list of objectives that were established by Beacon and Equitable. The objectives were essentially a "wish list" that any developer would desire to have for their project financing. These objectives are outlined below.

1) **100% Financing.** The developers wanted to finance $287 million, which was the total project cost including reserves for operating deficits during the lease-up period, and the actual leasing costs (tenant improvements and free rent). This amount also included the repayment of the existing $80 million loan that the developers took out for the initial land acquisition.

2) **Fixed Rate Financing.** Interest rates were favorable at the time and they did not want to risk the chance of an adverse move. They wanted to obtain fixed rate financing for both the construction loan and the permanent loan.

3) **No Further Participation.** With the two co-developers already giving 20% of the project to the limited partners, they did not want to give anymore away to a lender. Essentially they wanted to obtain the maximum amount of leverage possible.

4) **10 To 12-Year Term.** The rates for ten-year money were favorable at the time, vis-a-vis the project's proforma, and the developers wanted to lock them in for long term financing. (10-year Treasuries were approximately 9% in early 1986). Financing for a term longer than twelve years was not readily available and would involve significant participation on behalf of the lender.

5) **Limit Personal and Corporate Guarantees.** Although the project was highly speculative, they wanted it to stand on its own. Beacon, being a family owned business, did not want to give personal guarantees to obtain financing. Equitable Real Estate wanted to act as a co-developer and not be dependent on the credit of their parent company. If they had to use the parent company for credit enhancement, it would have cost them 1% of the principal amount.

6) **Right To Pre-Pay.** Although the partnership wanted long term financing, they also wanted the flexibility to pre-pay the money at any time with little or no penalty. This would give them a maximum amount of flexibility to sell the property or refinance it once it was fully leased and seasoned.

7) **Lowest Cost.** Even though the developers wanted to meet all of their objectives, there was an obvious limit on what they were willing to pay for these advantages.

The Financing

The partners considered traditional financing alternatives but realized that none of these alternatives were going to meet all of their key objectives. Ten-year, fixed-rate, bullet loans were not available for an unleased, to-be-built office building. The partners did not want to do a below market lease with an anchor tenant just so they could obtain financing. Going open ended on a construction loan would require substantial guarantees from the partners. A closed ended construction loan requires a forward take-out commitment, but to get such a commitment would require a participating and/or convertible mortgage to a pension fund. This would seriously dilute the partners equity position. Furthermore, the participating mortgage would carry severe pre-payment penalties.

After a brainstorming session over the above set of objectives with the investment banking firm of Goldman Sachs & Co., the partners decided to try to apply certain corporate financing techniques to real estate. The elements of the successful financing are outlined below.

Commercial Paper Program

To raise the $287 million in funds, the partnership issued floating rate commercial paper. In order to sell commercial paper carrying the lowest interest rate possible, the paper had to carry an investment grade rating from both S&P and Moody's. There was no pre-leasing on the project, so by itself, the development would never get the required ratings. Therefore, the partnership needed a third party with an investment grade rating to guarantee the project. Citicorp, who has the highest rating of all the U.S. banks, was retained for the credit enhancement. Citicorp posted a letter of credit in the amount of $287 million to guarantee the issuance and then acted as the commercial paper dealer. The letter of credit guarantees the paper for a ten year term.

Interest Rate Swaps

The commercial paper was issued approximately every 90 days to approximate the construction draw schedule. Once the full amount was issued it will float for a ten year period. Citicorp continues to be the dealer, constantly revolving and

re-issueing the paper. Since the interest rate for the commercial paper program is floating and the developers desired fixed-rate financing, they entered into a series of interest rate swaps to fix the rate. Eight forward serial-swaps had to be established since the commercial paper was not being issued all at once. The swaps were set up to match the construction draw schedule and the issuence of the commercial paper. Although Citibank could have provided the forward swap commitments, the partnership decided to let Goldman Sachs find the swap conuterparties to avoid monopolistic pricing. Goldman solicited bids from counterparties for the eight forward swap commitments and, in fact, Citibank was awarded three of the eight swaps. The interest rate swaps that were entered into are listed in Exhibit 2.1, 75 State Street Interest Rate Swaps.

One of the risks inherent in the transaction is that the swap commitments are based on the Federal Funds 30-day Composite Index, while the obligation for the actual payments is based on Citicorp's rating. Although the spread between the 30-day composite and Citicorp's commercial paper is currently slight, any downgrading or inherent rumors in Citicorp's rating would increase this spread significantly. Given the amount of sovereign debt held by Citibank and currently outstanding, this possibility is not remote.

75 STATE ST.
Interest-Rate Swaps

Ultimate Counterparty	Amount (millions)	Start Date	End Date	Annual Fixed Rate	Fixed Rate Pay Dates	Floating Rate (N.Y.F.R.B H-15 Composite 1-mo. C.P. Rate) Receipt Date (in arrears)	Floating Rate Set Date
PHH Group, Inc.	$100	1/5/87	1/1/97	8.15%	3/1 & 9/1	1st of each month	1st day of each period.
UBS Securities (Union Bank of Switzerland affiliate)	$25	9/15/87	12/15/96	8.451%	6/15 & 12/15	15th of each month	Avg. rate during each period.
Citibank, N.A.	$25	12/15/87	12/15/96	8.542%	6/15 & 12/15	15th of each month	" "
Citibank, N.A.	$25	3/15/88	12/15/96	8.632%	6/15 & 12/15	15th of each month	" "
Citibank, N.A.	$25	6/15/88	12/15/96	8.722%	6/15 & 12/15	15th of each month	" "
Morgan Guaranty Trust Co.	$25	12/15/88	1/15/97	8.727%	15th of each month	15th of each month	" "
KBCF (Kleinwort Benson Cross Financing)	$25	3/15/89	12/15/96	8.97%	6/15 & 12/15	15th of each month	1st day of each period.
KBCF	$36.5	6/15/89	12/15/96	9.56%	6/15 & 12/15	15th of each month	" "
	$286.5						

Note: If any Pay Date, Receipt Date or 1-mo. C.P. Rate Setting Date falls on a weekend or holiday it will become the next business day.

The combined eight swaps gave the development a fixed rate payment of slightly more than 9.5% for a ten year period. The developers obligations under the swap contract are as follows; 1) Pay the Federal Reserve Bank's 30-day composite for commercial paper, 2) Cover the spread between the composite index and Citicorp's commercial paper (currently ranging from 0 to 10 basis points), 3) Pay the commercial paper dealer's fee (ranges between 10 and 12 basis points), and 4) Pay the issuers fee for the letter of credit (which was approximately 100 basis points but can range anywhere from 50-200 basis points).

Additional Hedges

One of the inherent problems with securitization as a financing vehicle is the time involved. It took approximately 11 months to close the transaction from the time Beacon and Equitable started working on it. While they were working out the financing, interest rates were falling dramatically throughout the year (1986). To protect themselves from a change in this trend, the developers bought "put" options on 10-year Treasuries early in the process. They chose options instead of futures, because although they wanted to protect themselves from a rise in interest rates, they believed that rates would continue to fall and wanted to benefit from this trend.

The 120 day option was for 10-year Treasuries at 8%, which was 50 basis points out of the money. The premium paid for an amount equal to their principal amount was $5.5 million. Interest rates continued to fall and the developers let the option expire. However, several months later, the developers locked in their rate by selling short $280 million of 10-year Treasuries, which at the time were in the low 7% range. The cost of the short sale was 10 basis points.

Summary

The financing for 75 State Street met all of the partner's objectives, giving them 10-year financing fixed at approximately 9.5%. This financing gives the partnership maximum flexibility. They can unwind the commercial paper program at any time, simply by not re-issueing the paper when the roll over occurs. For this reason, any downgrading in Citicorp's rating does not have a significant adverse impact. The developers could simply switch to conventional financing or find another party to support the commercial paper. The interest rate swaps can also be unwound by marking them to market and paying the difference between the current and future value (if any). Conversely, the swaps can be left in place and applied to the new financing or another financing. The credit enhancement can also be replaced if a less expensive guarantee can be found.

A LIBOR (London Interbank Offered Rate) based loan with interest rate swaps would have given the developers similar flexibility and would have eliminated the differential between the 30-day composite index and Citicorp's rated commercial paper. However, even with this spread eliminated, the developers found that LIBOR based financing, at the time, would have been 25 basis points more expensive. On the $287 million financing, the 25 basis points equated to more than $700,000 per year in extra finance costs.

NOTES TO CHAPTER II.

1. Hemmerick, Steve. "Innovative Financings Prevail In 1987's Deals," Pensions and Investment Age, Fall 1987. pp. 2.

2. Ibid.

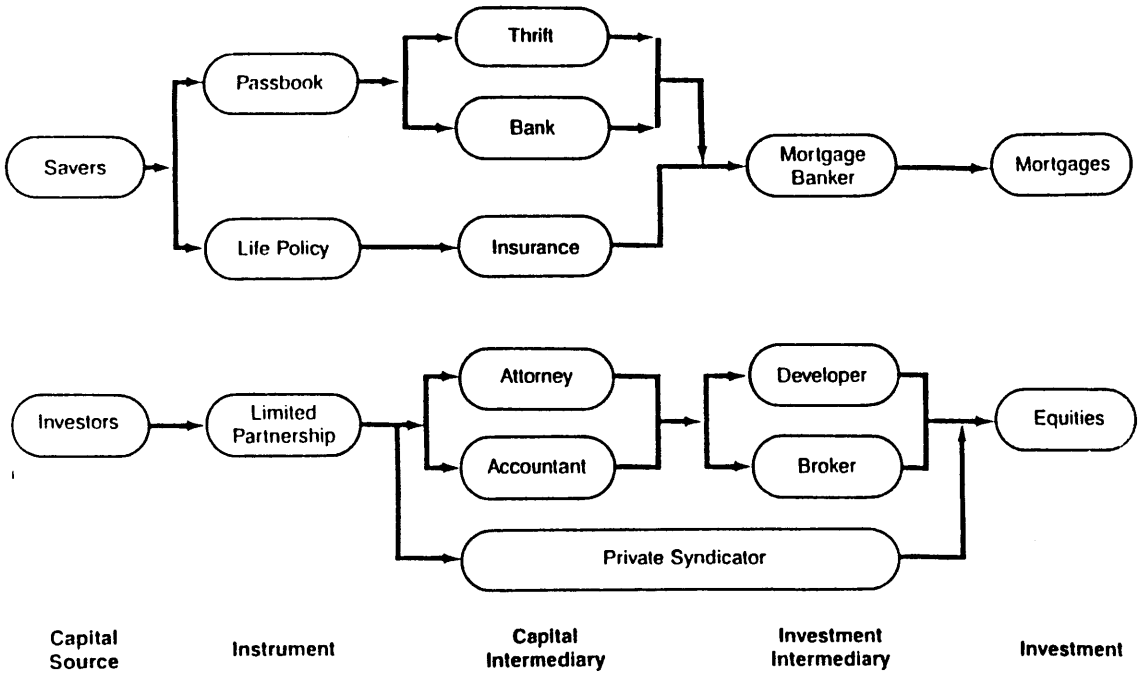
3. Kateley, Richard. "Emerging Trends In Real Estate: 1989." Real Estate Research Corporation. November 1988. pp. 17.

CHAPTER III.

THE REAL ESTATE CAPITAL MARKET

To analyze the financing of 75 State Street and the effectiveness of securitizing to-be-developed properties, it is necessary to set forth the evolution that has occurred in the real estate capital markets. Exhibit 3.1 depicts a model of the traditional real estate capital market established by John McMahan Associates. This model shows a clear distinction between the sources of debt and equity.

Exhibit 3.1
Traditional Real Estate Capital Market



Source; John McMahan Associates Inc.

In the traditional capital market there were three distinct parties who ultimately invested in a real estate development. Commercial banks invested in the form of short term debt, insurance companies invested through long term debt, and the development partnership retained all of the equity.

Traditional financing, for to-be-developed properties, revolved around a forward take-out commitment from an institution, typically the life insurance company. The take-out was essentially a commitment by the life company to fund a long-term loan once the property reached a stabilized occupancy. This loan was usually self-amortizing with a fixed interest rate for a 25-30 year term. With the commitment in hand, the developer could then get 100% financing from a commercial bank for the short-term construction loan.

Prior to the 1980's, the traditional model of the real estate capital market was extremely efficient and represented little risk to the parties involved. The life insurance companies mitigated their risk by not funding until the building reached a stabilized occupancy. At that point, it was a safer investment. The uncertainties of a new development were removed and the building could produce a steady stream of cash flows to service the debt.

For the construction lender it was also a relatively safe investment. Real interest rates at the time were stable and

markets were not overbuilt, so the construction and lease-up period could be accurately forecasted. Having the take-out commitment from the life company gave the construction lender an assurance that the money would be there to take them out of the development once it was fully leased. Traditionally, the construction lender would only be in the deal for a two to three year period, depending on the size of the development.

However, in the past decade there have been several major events that have occurred in the United States which have dramatically altered the capital market for real estate and the traditional forms of financing.

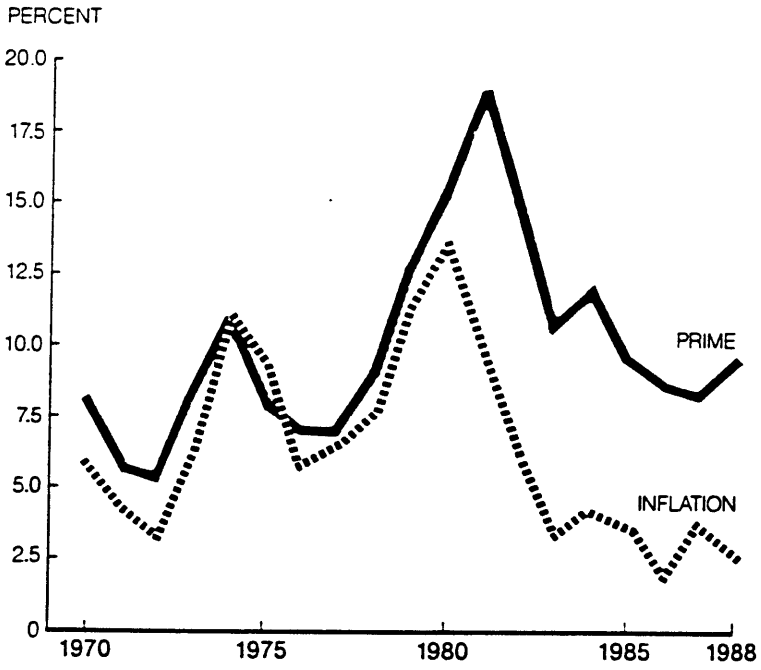
The first of these events actually occurred more than a decade ago, but the effects of it on the real estate industry were not felt until recently. In 1974, major pension legislation, commonly known as ERISA (Employee Retirement Investment Security Act), was enacted. For the first time, ERISA established minimum amounts that employers had to set aside for pensions of future retirees. The effect of this legislation created an unprecedented supply of new investment dollars in pension funds. (1) In an effort to diversify their portfolios, the fund managers slowly began to invest in real estate. Eventually, the domestic pension funds replaced the life insurance companies as the primary investor in U.S. real estate. (2)

The second major event came in October of 1979, when the new chairman of the Federal Reserve Bank (Paul Volcker), started to control the nation's money supply rather than interest rates. This allowed the free market to set the interest rates, and for the first time in recent history, a relatively stable interest rate environment disappeared.

The advent of the Reagan administration compounded the problem when they repealed Regulation Q, which had regulated the interest rates that banks could pay on various accounts. This deregulation of banks and thrifts freed up more money to be invested in real estate, while giving more uncertainty to interest rates.

These events resulted in extremely volatile nominal interest rates and the highest real interest rates that we have experienced in recent history. Simultaneously, the Federal government began incurring major budget deficits and the United States began incurring major foreign trade deficits. (3) This caused inflation to become equally volatile. The volatility of interest and inflation rates are shown in Exhibit 3.2. Note the dramatic increase in the real interest rate, which is the spread of the nominal interest rate (shown) over the inflation rate.

Exhibit 3.2
Financial Volatility: Prime Rate Vs. Inflation Rate



Source; U.S. Bureau of the Census, Real Estate Research Corporation.

With the financial volatility that was occurring in the late seventies and early eighties, individuals began purchasing term life insurance rather than whole life. (4) As a result, the life insurance companies could no longer count on a steady flow of insurance premiums for the future. The uncertainty of their only source of funds, combined with the fact that real estate developments were becoming more costly and the construction/lease-up periods taking more time, meant that the life insurance companies could no longer give developers forward commitments. (5) The primary source of funds for

permanent financing in the traditional real estate capital market was no longer available. This forced the developers of 75 State Street and the rest of the industry to look elsewhere for their long-term money.

The life insurance companies were replaced by the domestic pension funds as the major source of long-term capital for real estate. Since the ERISA pension act in 1974, the volume of pension fund money needing to be invested has significantly increased . In the past four years the pension funds have more than doubled. The top 200 pension funds now control well over one trillion dollars and the top 1000 funds control over two trillion dollars. Although the percentage of their total assets invested in real estate has remained relatively stable, the total dollar amount invested in real estate has grown dramatically. (See Exhibit 3.3; Pension Fund Asset Mix).

Exhibit 3.3
Pension Fund Asset Mix For The Top 200 Funds

	1984		1987	
Asset type	**$ Billions**	**Percent**	**$ Billions**	**Percent**
Stocks	264.3	41.2	564.0	47.1
Bonds	214.2	33.4	378.4	31.6
Cash	66.7	10.4	98.2	8.2
Real estate equity	2.2	3.3	40.7	3.4
Mortgages	14.1	2.2	16.8	1.4
Mortgage-backed securities	18.6	2.9	40.7	3.4
GICs	19.2	3.0	27.5	2.3
Other	23.1	3.6	31.1	2.6
Total	641.4	100.0	1,197.5	100.0

Source; Pension and Investment Age, Real Estate Research Corporation.

With the financial volatility that was occurring in the capital markets, the pension funds primary concern was protecting their principal and hedging inflation. Historically, real estate has provided a good hedging vehicle combined with a diversification opportunity due to it's negative correlation to stocks, which is the primary investment vehicle for pension funds. Exhibit 3.4 compares the returns on real estate and the S&P 500 to inflation, indicated by the Consumer Price Index.

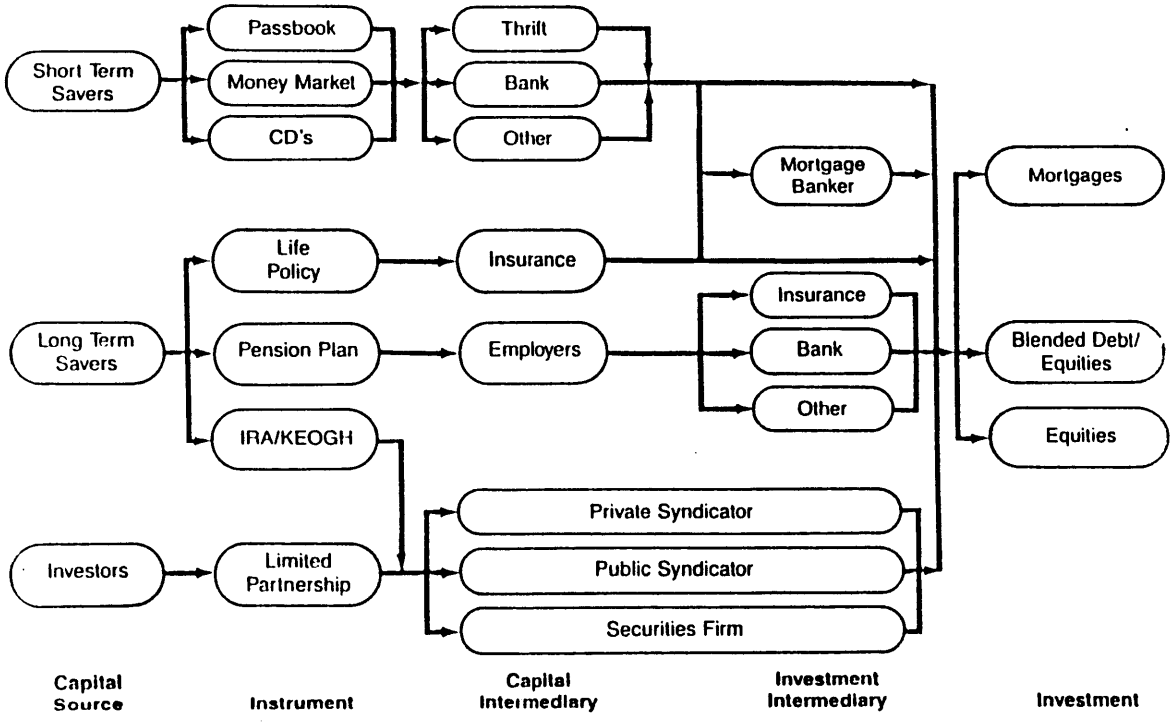
Exhibit 3.4
Real Estate Pooled Fund Returns
and the S&P 500 Vs. Inflation

	Pooled real estate funds			S&P 500 stocks			
Year	Unrealized appreciation	Income return	Total return	Unrealized appreciation	Income return	Total return	CPI
1975	1.3%	8.6%	9.9%	28.4%	4.3%	32.7%	7.0%
1976	2.4	8.8	11.2	15.1	3.8	18.9	4.8
1977	3.2	8.8	12.0	(8.4)	4.6	(3.8)	6.8
1978	8.0	9.6	17.6	3.4	5.3	8.7	9.0
1979	11.2	9.6	20.8	8.4	5.5	13.9	13.3
1980	8.9	9.3	18.2	26.4	5.3	31.7	12.4
1981	7.9	8.9	16.8	(8.2)	5.2	(3.0)	8.9
1982	0.6	8.5	9.1	11.9	5.8	17.7	3.9
1983	5.8	8.4	14.2	21.2	4.4	25.6	3.8
1984	5.3	8.4	13.7	(0.3)	4.6	4.3	4.0
1985	2.6	7.7	10.3	19.2	4.2	23.4	3.8
1986	1.4	7.2	8.6	23.7	3.5	27.2	1.1
1987	0.5	6.9	7.4	2.0	3.1	5.1	4.4
Arithmetic mean	4.5	8.5	13.1	11.0	4.6	15.6	6.4

Source; Real Estate Profiles, Evaluation Profiles; Standard & Poor's; U.S. Department of Labor, Bureau of Labor Statistics; Real Estate Research Corporation.

The result of all the turmoil, has drastically increased the cost of financing and the financial risk involved in new developments. What has emerged is a new structure to the real estate capital market. (See Exhibit 3.5; The New Real Estate Capital Market).

Exhibit 3.5
The New Real Estate Capital Market



Source; John McMahan Associaties Inc.

In the new structure there has been a dramatic shift in the distribution of risks and rewards between those parties that had traditionally put up equity and those institutions that

had traditionally supplied debt. (6) The life insurance companies who had been the primary source of debt have been out of the forward take-out business for approximately seven years. (7) Instead they have focussed on investing in seasoned properties or providing advisory services for pension funds. The volatility of interest rates caused the pension funds to drastically reduce the term of their fixed-rate loans from thirty years, to not more than ten years, and often as short as seven. To hedge their inflation concerns, they have sought equity positions or equity disguised as debt in the form of participating and/or convertible mortgages.

While the above events dramatically altered the investment strategies of domestic investors, foreign investors were also affecting the financing of real estate. Foreign capital investment became essential as the United States became the world's largest debtor nation. As a result, the domestic capital markets are now constantly affected by the level of interest rates, currency exchange rates, and the stock markets in Europe and Japan. (8)

As lenders adjusted their investment strategies, it forced developers to adjust theirs also. What evolved under the new capital market structure is a mixture of debt and equity instruments such as development partnerships, fee development, participating-type mortgages and securitization. Gone is the traditional form of financing, with the developer owning 100%

of the project with a long term mortgage for 100% of the project's costs.

Developers have become much more risk adverse than they were under the traditional capital structure of ten years ago. They are more willing to surrender some of the upside potential in order to spread the downside risks on to other parties. The pension funds are willing to assume some of these risks earlier in the development process in order to boost their returns. The financing alternatives that have emerged, allow the institution to enter a real estate investment anywhere along the risk spectrum. They also allow a developer to assess their risk preferences, and assign those risks that they are not willing to take on to other parties.

The new capital structure allows greater efficiency in our high interest rate environment, enabling investors to better balance the risks and rewards in light of their risk profiles. The result is a new level of sophistication in real estate finance, as developers become more risk adverse and the lending institutions become more involved in the development process. The financing tools being used today reflect an increasing comfort with the capital markets on behalf of the developer, and an increasing knowledge of real estate on behalf of Wall Street. These forces all played an integral part in the decision process, and the ultimate financing, for 75 State Street.

NOTES TO CHAPTER III.

1. Perriello, Robert, "New Real Estate Financing Methods Reflect Changes In Capital Markets". Banker and Tradesman, December 16, 1987.

2. Downs, Anthony. The Revolution In Real Estate Finance, The Brookings Institution, 1985. pp. 215.

3. Perriello, Robert, "New Real Estate Financing Methods Reflect Changes In Capital Markets". Banker and Tradesman, December 16, 1987.

4. Ibid.

5. Ibid.

6. Downs, Anthony. The Revolution In Real Estate Finance, The Brookings Institution, 1985. pp. 8.

7. West, Richard. Principal, West Partners. San Diego, Ca.

8. Perriello, Robert, "New Real Estate Financing Methods Reflect Changes In Capital Markets". Banker and Tradesman, December 16, 1987.

CHAPTER IV.

THE NEW FINANCIAL STRUCTURES

In order to analyze the complex financial structure that was put in place for 75 State Street, it is necessary to understand the financing alternatives that were available to them. The developers for 75 State Street explored several different alternatives, all of them being relatively new instruments that had emerged from the new capital market structure. These included development partnerships, participating and/or convertible mortgages, accrual mortgages, or floating rate instruments combined with an interest rate cap. The developers weighed each of these alternatives against their financing objectives and the risks they were willing to assume.

Development partnerships between pension funds and developers are currently the most popular way to shift the risks and rewards among the different parties. (1) New England Mutual Life is considered to be the pioneer in development joint ventures. The concept was first used by them in 1966, however it did not take off until they separated their real estate program and formed Copley Real Estate Advisors in 1982. Today, Copley is considered the leader in institutional joint ventures, which is still a relatively new concept for most pension funds.

Pension funds traditionally shyed away from to-be-developed equity investments due to the high degree of risk. However in the past few years, pension funds have increasingly entered the development process earlier on, in an effort to boost their returns and hedge inflation. Their desire has been welcomed by the development community. With fixed-rate, forward commitments no longer available, developers have to go open ended on their construction loans. With softening markets and rising interest rates, combined with the increasing costs of development and the length of time involved, many developers are forced to find joint venture partners that are well capitalized and willing to share the risks involved.

The developers of 75 State Street explored a partnership arrangement with both domestic and foreign pension funds. One of the problems encountered was the speculative nature of the development. With no pre-leasing in place, there was essentially no pension fund willing to contribute $287 million in equity. A development partnership would have required at least 20% equity contribution ($57 million) on behalf of Beacon and Equitable, and a preferred return to the pension fund in the order of 9-10%. Furthermore, the equity position of the original partner's interests would be seriously diluted, by a magnitude of approximately one-half.

Participating and/or convertible mortgages presented a similar problem for the developers. The participating mortgage is currently the most widely used debt instrument for to-be-developed projects. (2) The instrument is essentially equity disguised as debt because the lender participates in the project's cash flows. In this respect it is very similar to development partnerships. The developers would have to contribute a minimum of 20% equity and pay a preferred return in the form of the coupon rate on the note. Under the participating structure, they would see their equity position diluted by promising half of the cash flows to the lender. Under the convertible structure, half of the back end of the deal would also go to the lender. A further analysis of participating-type mortgages and an example of a current financing using these structures is given in Appendix A.

Another debt instrument that has evolved out of the new real estate capital market is the accrual mortgage. This is essentially a fixed-rate instrument that has a lower pay rate in the early years. The difference in the pay rate and coupon rate accrues and is paid at maturity. The accrual mortgage was designed to give developers a lower debt service in the early years before the property stabilizes but give the lender a higher coupon rate overall from the back end of the development. In this way, the accrual mortgage more closely matches the project's cash flows than traditional fixed-rate mortgages did. Although the accrual mortgage generally gives

a developer a higher loan amount than conventional financing, it is usually lower than what a participating-type structure provides. Therefore, 100% financing would not be available under this alternative. Due to the lack of pre-leasing, the accrual mortgage would require personal and/or corporate guarantees as well, something that Beacon and Equitable wanted to avoid. Appendix B outlines the terms of a current financing using an accrual mortgage in comparison to conventional financing.

The developers of 75 State Street also explored going with a floating rate loan and then fixing the rate with an interest rate cap. Although they would have had to post guarantees, this scenario would have yielded the 100% financing they desired. However, interest rate caps had limited availability for more than a seven year term. Caps that were available for a longer period were 400 to 500 basis points above the prevailing interest rate. This did not provide much protection in lieu of the volatile interest rates of the past five years. Even at this level, the cap would cost between 50 and 70 basis points of the principal amount.

NOTES TO CHAPTER IV.

1. Downs, Anthony. The Revolution In Real Estate Finance, The Brookings Institution, 1985. pp. 215.

2. Clagett, Gordon. Principal, Aldrich Eastman & Waltch, Boston, Ma.

CHAPTER V.

SECURITIZATION

The securitization program that was used to finance 75 State Street epitomizes the departure from the traditional real estate capital market and the continuing integration of Wall Street into the real estate industry. Securities for commercial real estate are a relatively recent phenomena, first emerging in late 1983. (1) They evolved out of the residential mortgage market and first appeared as commercial mortgage securities. These took several forms such as Real Estate Investment Trusts (REIT's), Real Estate Mortgage Investment Conduit's (REMIC's), and Collateralized Mortgage Obligations (CMO's). All of these investment vehicles involved seasoned properties bundled together. This offered the investor less risk through secured income streams and geographical diversification.

In the past four years, the annual volume for commercial real estate securities ranged from $10 billion to a high of $19.7 billion in 1985. However, these volumes are miniscule compared to the total amount of commercial debt in the U.S., now estimated to exceed $1 trillion, and commercial real estate equity now estimated to exceed $2.2 trillion. (2)

The securitization of to-be-developed properties has been much slower to develop. The commercial paper program that was used to finance 75 State Street was highly successful in

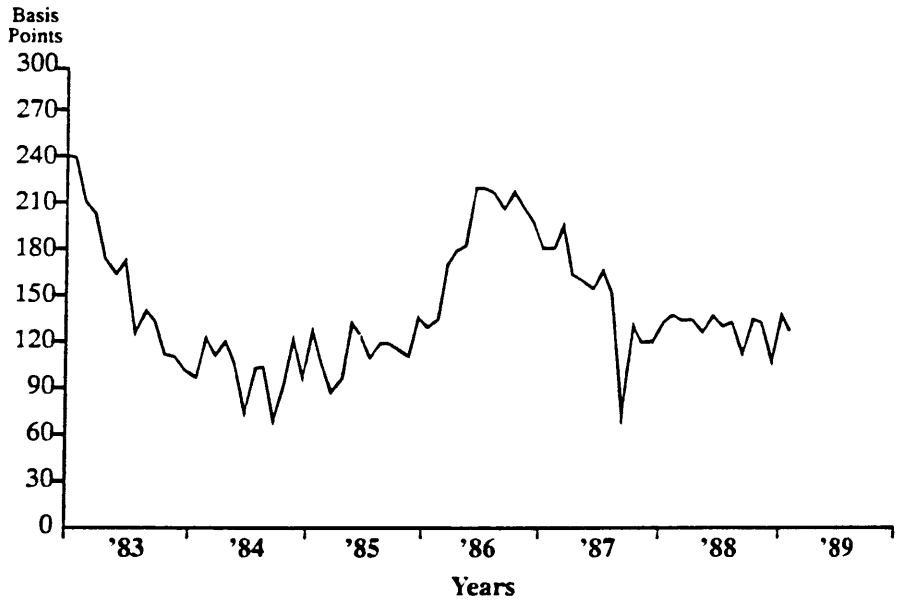
meeting all of the developers objectives and marked the first time securitization was used on an unleased, to-be-built office building. (3) When the transaction first occurred, many people in the industry believed securitization to be the future of the development industry. This belief was reinforced by the securitization of the 1201 Third Avenue development in Seattle Washington, which occurred shortly after 75 State Street.

Wall Street continues to tout securitization as the wave of the future, as they recognize the huge untapped potential of securitizing commercial real estate and the fees that are associated with it. However, to determine the future of securitization, it is necessary to understand why it was successful in the past, and the advantages and disadvantages of using it in the future.

The success of securitization programs depend on the perceived risk of the investment by the capital markets. For this reason, investors in real estate securities will always compare the risk of the investment (determined by the credit rating) to the risk free investment of U.S. Treasuries of a similar term. When deciding if securitization is a feasible alternative, developers must therefore compare the like-term Treasury plus the securitization costs, to a bullet loan of the same duration.

The commercial paper for 75 State Street was based on a ten year term. Over the past six years the spread of 10-year bullet loans over 10-year Treasuries has been extremely volatile, sometimes changing as much as 150 basis points in a single year. (See Exhibit 5.1; Spread of 10-Year Bullet Loans Over 10-Year Treasuries).

Exhibit 5.1
Spread of 10-Year Bullet Loans Over 10-Year Treasuries



Source; Barron's, Goldman Sach's & Co..

At the time of the financing (1986), the spread of 10-year bullet loans over 10-year Treasuries was approximately 230 basis points. This gave the developers a significant spread to cover the 120 basis points in fees, plus the spread of the Federal Funds 30-day Composite Index for dealer paper over the

Treasury bill, approximately 70 basis points. However, since mid-1987, the spread of 10-year bullet loans over 10-year Treasuries has remained relatively stable, ranging from 120 to 130 basis points. This is the primary reason why we have not seen more commercial paper issues on to-be-developed projects. Developers continue to see securitization as an alternative but are finding bullet loans and participating-type mortgages to be significantly less expensive in today's market. (4)

The costs that are involved in securitization is a major detriment to its use. The largest of the these costs is the credit enhancement that is needed on most new developments. The success and pricing of a real estate security depends upon the credit rating that the property receives. Credit agencies that have typically rated corporate bonds, such as Standard & Poor's Corporation, Moody's Investors Services and Duff & Phelps, have adapted their requirements for such ratings to real estate. (See Appendix C for the minimum requirements needed for Standard & Poor's credit ratings, and a definition of these ratings). Due to the stringent requirements, developers have to turn to third party credit enhancement to obtain an investment grade rating. The developers of 75 State Street used Citibank as the third party guarantor for a fee of approximately 100 basis points or $ 2.9 million. The securitization of 1201 Third Avenue used a letter of credit from Deutsche Bank AG to guarantee their commercial paper issue of $120 million.

The fees for third party credit enhancement significantly increases the cost of securitization of to-be-developed properties compared to seasoned properties. The Beacon Companies were able to obtain a AA rating on Center Plaza, a fully leased Boston office building, without any third party credit support. They were able to obtain financing at 9.1%, approximately 40 basis points less than 75 State Street, with 10-year Treasuries being 10 basis points higher (7.3%) at the time of the issue.

If developers can avoid using third-party guarantees, securitization is much more attractive. The IBM Somers Office Complex in Westchester County, New York, is an example of this. The 1.1 million square foot development will headquarter the five operating units of IBM United States. The property is a joint venture between IBM, The Shorenstein Company and Bechtel Investments Inc. and will be leased to IBM for a term beyond the term of the debt. The $206 million worth of twelve year notes were rated AAA by Standard & Poor's and Aaa by Moody's Investor Service due to the quality of the tenant. This financing was the first mortgage transaction ever to receive the highest possible credit rating from both of these agencies. (5) Unfortunately, most developments are not pre-leased to such blue-chip companies as IBM.

The cost of credit enhancement can range anywhere from 50-200 basis points depending on the level of risk in the development that is perceived by the sponsor. (6) Even though 75 State Street was speculative, with zero pre-leasing, it was perceived by Citibank to be a relatively low risk deal for the following reasons;

A) The Boston office market was among the strongest in the nation. The lack of pre-leasing was by design. The developers did not want to sign a below market lease with an anchor tenant just to obtain financing.
B) 75 State Street was considered to be the prime location within Boston's financial district.
C) The quality of the building was considered to give 75 State Street the most prestigious address in Boston.
D) The quality and size of the developers, Beacon and Equitable, gave further assurances that a successful project would be developed and that a default was not likely.

Without the above conditions, the commercial paper program on an unleased, to-be-built office building, may not have yielded such low financing costs without additional credit enhancement or guarantees from the developers.

As the cost of development continues to increase, many owners believe that securitization is the only way to avoid monopolistic pricing of their debt. As the size of a deal increases, the number of capital sources willing to finance the required amount decreases rapidly. When dealing with large scale developments such as 75 State Street, there are very few sources of capital willing to finance $300 million worth of debt. This results in the complexity and inefficiency of dealing with several lenders or suffering the monopolistic power of dealing with the few institutions capable of financing the entire amount. This fundamental problem was a primary factor in the decision to securitize the development of 75 State Street. (7)

Securitization provides access to a broader range of financing sources and therefore can give the developer lower borrowing costs. By accessing the capital markets directly, borrowers have been able to achieve all-in financing costs in the neighborhood of 50 basis points lower than conventional financing. (8) On a $100 million loan, this could equate to a savings of $500,000 annually and $5 million over the life of a ten year loan.

However, many developers believe that not having a single lender to deal with is a major disadvantage to securitization and one of the primary reasons why the vehicle has not been more popular with to-be-developed projects. (9) One of the

traditional advantages to using non-securitized financing supplied by a large institution, is the purported long-term flexibility that often develops through the course of the relationship. The institutions, or their advisors, are usually experts at evaluating the returns, appreciation potential, non-systematic risks, and the development possibilities that are often unique to a particular project. If the institutions that are supplying the capital have enough of a time horizon, and they share in the developer's vision of the project's potential, they often exhibit the flexibility to change rates, terms, restructure the debt, or supply additional capital to a troubled property. (10)

In contrast, the markets for securitized debt and equity are relatively impersonal, as are the agencies who rate the securities. When a securitized project gets in trouble there is not the flexibility and understanding to restructure the debt as in traditional financing. If the developer tries a second issue to raise additional capital, or a restructuring of the existing issue, it signals a troubled venture to an investment community that does not understand the market conditions. This negative signal will greatly increase the cost of the capital infusion, at precisely the time when the developer needs relief.

The securitization of 75 State Street was successful due to the nature of the capital markets at the time, particularly

the high cost of conventional loans in relation to Treasuries. Until we return to the large spreads encountered in 1982 and 1986, the high costs involved will prevent securitization from being a financially feasible alternative for to-be-developed projects. However, developers must weigh the costs involved, and the disadvantages discussed above, against the relative advantages securitization provides.

Securitization offers superior flexibility as to the timing, overall amount, and prepayment of the financing. The timing of an issue can be done all at once for permanent financing or it can be staged over time to match a construction draw schedule. The total amount can range anywhere from $25 million to over $1 billion, greatly exceeding the capacity of any institutional lender. Furthermore, the financing is non-recourse to the borrower and can be prepaid at costs significantly less than the typical yield maintenance penalties that are imposed on conventional loans.

The true test for the securitization of real estate will come when existing securitized projects need to be refinanced. While there has been much focus on the default risk of securitization (the lack of annual cash flows to pay the debt service), Wall Street faces the more severe problem of the refinancing risk. (11) Similar to junk bonds, securitization is too recent of a financing tool to have seen it go full cycle.

The future costs of securitization will depend on how well the rating agencies have assessed the risk and how many third party sources have to fund their guarantees. The future of securitization on to-be-developed properties depends on not what the capital markets look like today but rather what they will look like ten years from now. As we have seen in the 1980's, the real estate capital market will continue to adapt to the changing financial markets and the risk profiles of the investment community.

NOTES TO CHAPTER V.

1. Kane, Carol and Weinstein, Robert. "Alternate Structures For Commercial Mortgage Securities, The Real Estate Finance Journal, Summer 1989. pp. 73.

2. Louargand, Marc. Phd. Center For Real Estate Development, Massachusetts Institute of Technology. Estimated from Federal Reserve Board Data.

3. Hemmerick, Steve. "Innovative Financings Prevail In 1987's Deals," Pensions and Investment Age, Fall 1987. pp. 2.

4. Mahony, Kevin. Vice President, Managing Director, Copley Real Estate Advisors. Boston, Ma.

5. Healey, Thomas J., Ewald, Charles R., Feder, Leslie M. "Rated Mortgage Notes: An Attractive Investment," Real Estate Finance Journal, Summer 1989. pp. 70.

6. Miller, Adair. Vice President, Citicorp Real Estate Inc. Boston, Ma.

7. Harwood, C.J. Senior Vice President, Equitable Real Estate Investment Management Inc. Boston, Ma.

8. Healey, Thomas J., Ewald, Charles R., Feder, Leslie M. "Rated Mortgage Notes: An Attractive Investment," Real Estate Finance Journal, Summer 1989. pp. 69.

9. Mahony, Kevin. Vice President, Managing Director, Copley Real Estate Advisors. Boston, Ma.

10. Macchia, Anthony F. "The Securitization of Real Estate: Strategies For Investment Banking," Real Estate Finance Journal, Fall 1987. pp. 25.

11. Shilton, Leon G. "The Snail's Pace of Commercial Debt Securitization," The Real Estate Finance Journal, Fall 1986. pp. 31.

CHAPTER VI.

CONCLUSION

The securitization of to-be-developed properties has produced successful financings, as evidenced by 75 State Street. Securitization can provide developers with a great deal more flexibility than would be obtained through conventional financing. However, the past success of commercial paper programs was the result of the state of the capital markets at the time, rather than the innovation of securitization as a financing vehicle. The quality of the Boston office market, the development team, and the large spread that existed between conventional financing and Treasuries, all contributed to the success of 75 State Street. Without these factors in place, alternate financing vehicles would have proved more financially feasible.

As office markets around the country continue to be overbuilt, securitization of to-be-developed properties will not be feasible. Due the high degree of speculation inherent in these developments, third-party credit enhancement will continue to be cost prohibitive, as lenders are now recognizing the potential of default when the refinancing of securitized properties begins to occur.

Securitization will continue to be attractive if developers can avoid the costly process of third-party credit

enhancement. However, credit enhancement will continue to be necessary in the absence of pre-leasing to high quality, blue-chip tenants.

If we return to the large spreads between conventional financing and Treasuries that existed in 1982 and 1986, then securitization of to-be-developed properties may once again be financially feasible. Until that occurs, we will see the continuing use of institutional partnerships and participating-type mortgages as the primary financing vehicles under today's capital market structure.

APPENDIX A.

PARTICIPATING AND CONVERTIBLE MORTGAGES

Participating Mortgage

The participating mortgage is currently the most widely used debt instrument for permanent financing on to-be-developed projects. In a typical participating mortgage, the lender funds the loan at a below market rate and in return receives a participation interest in the project's cash flows. The vehicle was first designed prior to the Tax Reform Act of 1986 for financing involving taxable and non-taxable entities. In this scenario, the non-taxable lender (pension fund) would receive the cash flows from the project while the developer would retain sole equity ownership and therefore all of the tax benefits associated with real estate. Since Tax Reform, this is no longer as great an issue. However, the participating mortgage still remains the primary financial structure to share and/or separate the risks and rewards between the lender and borrower.

The advisory company of Aldrich, Eastman & Waltch was one of the early pioneers in the participating mortgage market and it is still their primary investment vehicle. The reason is that the majority of pension money is interested in an equity position (rather than a fixed-rate mortgage) to act as a hedge against inflation and/or to boost their yields. Historically,

participating mortgages have yielded higher returns than fixed rate mortgages but since the coupon rate is lower, the higher yield represents a greater risk than a fixed-rate yield. (1)

The participating mortgage is essentially an equity position disguised as debt. The mortgage provides protection for their capital and a minimum return, yet it helps the development through use of leverage and tax benefits. The lender gets the upside potential with little downside risk. The participating mortgage is also used to separate the cash flows from the back end of the deal. Thus lenders use it as an incentive tool for the developer/partner to deliver a profitable project.

The developer usually does not mind giving away some of the upside potential because of the benefits that the participating mortgage provides. The coupon rate on the mortgage is usually below that of a fixed-rate mortgage. This helps the projects cash flows in the early years and mitigates the risk of default. The average coupon rate on a participating mortgage today is between 8% and 9% with the lender averaging an overall yield of approximately 12% with the participation. (2) Fixed-rate mortgages today are currently averaging 10%.

Participating mortgages typically give the developer a larger amount of financing than fixed-rate mortgages. Primarily because the lower coupon rate allows a larger principal amount

with the same debt service coverage ratio. 90% financing can be achieved with participating mortgages and sometimes even higher. The high leverage, low coupon rate, and retention of all the tax benefits, enable the development to be better capitalized with a lower debt service and less risk of cash calls or default.

Convertible Mortgage

The features of the convertible mortgage act in much the same way as the participating mortgage. Similar to a participating mortgage, the instrument is essentially equity disguised as debt because it gives the lender the right to convert their debt into equity at certain specified time periods. Again, this gives the lender the upside potential of having a higher return while protecting the downside with a base coupon rate and a senior position on the property. The developer gets a below market coupon rate but unlike the participating mortgage, gets to keep all of the cash flows (if there are any) until the lender converts the option. For this reason it is in the developers best interest to negotiate the longest possible time before the lender can convert.

The convertible mortgage is an option on the future cash flows and residual sale proceeds of the project. The premium that the lender pays for this option is a lower coupon rate and a higher principal amount. However, they reduce their exposure

by having a first position mortgage with a base rate and the right to convert if the project appreciates enough to exceed inflation. The developer reduces the risk of deficits in the short term through the lower interest rate and higher loan amount but pays for it by granting an option on a portion (a negotiable percentage) of the developments appreciation.

Convertible mortgages can be combined with a participating structure to give the lender both a share in the projects cash flows as well as the right to convert. Exhibit A-1 compares participating and participating/convertible loan structures to conventional financing for a recent financing on a 1.5 million square foot regional mall. The mall had annual free and clear cash flow of $6.5 million which yielded a value of $100 million when capped at 6.5%.

Exhibit A-1
Comparative Loan Terms For Conventional, Participating and Participating/Convertible Structures

	Conventional	Participating	Participate/ Convertible
Proceeds Raised	$59 million	$75 million	$85 million
Initial Pay Rate	10.50%	8.25%	6% (yrs.1-2) 8% (yrs.3-5) 9% (yr.6-15)
Participation	N/A	40% of cash flow excess of base debt service. 40% of appreciation at maturity.	60% of cash flow excess of base debt service.60% of appreciation until 11% yield is earned & 50% thereafter.
Minimum Yield	10.75%	8.25%	8.12%
Estimated Yield	10.75%	11.10%	11.30%
Maturity Period	10 yrs.	15 yrs.	15 yrs.
Initial DCR	1.05	1.05	1.27
Range Of DCR	1.05-1.62	1.05-2.08	1.05-1.68
Range Of LTV	59-36%	75-57%	85-71%

DCR; Debt Service Coverage Ratio
LTV; Loan To Value Ratio

Source; Goldman Sachs & Co.

NOTES TO APPENDIX A.

1. Gorden Clagett, Principal, Aldrich, Eastman & Waltch. Boston, Ma.

2. Ibid.

APPENDIX B

ACCRUAL MORTGAGES

The Accrual Mortgage

The accrual mortgage is another financing structure that has evolved out of the current, high interest rate environment. Under the accrual mortgage, the schedule of pay rates slowly graduate until they meet a specified coupon rate. The accrued interest needed to meet the lender's yield requirement is paid at maturity. A variation of this structure is the Deep Discount Mortgage, where the pay rate remains fixed over the life of the loan and is well below the coupon rate. Under this structure all of the accrued interest is paid at maturity.

Both the accrual mortgage and the deep discount mortgage are useful to developers in that they provide a payment schedule that more closely matches the project's cash flows and appreciation. The two structures also typically provide higher loan amounts than conventional financing, although they are usually below what a participating-type structure would provide. Lender's like accrual mortgages because they provide a higher coupon rate over the life of the mortgage. However, they are not as desirable as participating mortgages because they do not offer a hedge against inflation. Exhibit B-1 compares the accrual and deep discount loan structures to conventional financing for the $100 million regional mall used in Exhibit A-1.

Exhibit B-1
Comparative Loan Terms For Conventional, Deep Discount, and Accrual Structures

	Conventional	Deep Discount	Accrual
Proceeds Raised	$59 million	$64 million	$73 million
Coupon Rate	10.50%	11.00%	10.75%
Initial Pay Rate	10.50%	9.25%	8.00%
Increase In Pay Rate	N/A	N/A	50 basis points every 2 years.
Initial DCR	1.05	1.10	1.11
Maturity Period	10 yrs.	7 yrs.	15 yrs.
Range In DCR	1.05-1.62	1.10-1.47	1.09-1.37
Range In LTV	59-36%	64-53%	73-42%

Source; Goldman Sachs & Co.

APPENDIX C

Minimum Requirements For Standard & Poor's Credit Ratings

Variables	Ratings 'B'	'BB'	'BBB'	'A'	'AA'
Debt service coverage ratio[a]	Minimum 1.05 x at origination	Minimum 1.1 x at origination	Minimum 1.15 x at origination	Minimum 1.2 x at origination	Minimum 1.2 x at origination
Loan-to-value ratio[b]	Maximum 90% at origination	Maximum 85% at origination	Maximum 80% at origination	Maximum 75% at origination	Maximum 75% at origination
Seasoning	Minimum 3 yrs.	Minimum 3 yrs.	Minimum 3 yrs.	Minimum 3 yrs.	Minimum 3 yrs.
Property type	Office building	Office building	Office building	Office buildng	Office building
Property size (only applicable to office buildings)	50,000 sq. ft.	50,000 sq. ft.	50,000 sq. ft.	50,000 sq. ft.	50,000 sq. ft.
Loan terms	Fully amortizing, level pay	Fully amortizing, level pay	Fully amortizing, level pay	Fully amortizing, level pay	Fully amortizing, level pay
Seasoned mortgage late payment history	No late payments in preceding year; no more than 2 in the 3 years prior to submission to pool	No late payments in preceding year; no more than 2 in the 3 years prior to submission to pool	No late payments in preceding year; no more than 2 in the 3 years prior to submission to pool	No late payments in preceding year; no more than 2 in the 3 years prior to submission to pool	No late payments in preceding year; no more than 2 in the 3 years prior to submission to pool
Needed credit support					Add 25% to reserve needed for 'A' pool

(a) Debt service coverage ratio is calculated as effective gross revenues minus operating expenses before taxes divided by total debt service charges.

(b) Loan to value ratio is the amount of the mortgage outstanding divided by the value of the property.

Source; Standard & Poor's, Real Estate Finance Journal.

Definition of Ratings

Rating	Category
AAA	Highest credit quality. The risk factors are only slightly more than for risk-free U.S. Treasury debt.
AA	High credit quality. Protection factors are strong. Risk is modest but may vary slightly from time to time due to of economic conditions.

A	Good quality investment grade securities. Protection factors are average but adequate. However, risk factors are more variable and greater in periods of economic stress.
BBB	Below average protection factors but still considered sufficient for institutional investment. Considerable variability in risk during economic cycles.
BB	Below investment grade but deemed likely to meet obligations when due. Protection factors fluctuate according to economic conditions. Overall quality may move up or down frequently within this category.
B	Below investment grade and possessing risk that obligations will not be met when due. Protection factors will fluctuate widely according to economic cycles. Potential exists for frequent changes in quality rating within this category or into a higher or lower quality rating grade.

Source; Real Estate Finance Journal.

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Adair Miller	Vice President, Citicorp Real Estate Inc. Boston, Ma.
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Thomas A. Steele	Chairman, Perini Land and Development. Framingham, Ma.
Richard West	President, West Partners Inc. San Diego, Ca.

BIBLIOGRAPHY

Adler, Tamara L. "Pricing Rated Commercial Mortgage Bonds," The Real Estate Finance Journal. Summer 1987.

Brueggeman, William B. and Patrick R. Currie. "Real Estate Financing Strategies In The Current Interest Rate Environment," Real Estate Research. Goldman Sachs & Co. June, 1989.

Brueggeman, William B. and A. Russell Jentes. "The Real Estate Report," Real Estate Research. Goldman Sachs & Co. January 1989.

Brueggeman, William B. and A. Russell Jentes. "The Real Estate Report," Real Estate Research. Goldman Sachs & Co. April 1989.

Commins, Kevin. "The Eight Best Hedges," Intermarket. August, 1987.

Chicago Board Options Exchange. "Options On Interest Rates," The Chicago Board Options Exchange. 1989.

Downs, Anthony. "Impacts of Changes In The Forms of Commercial Real Estate Ownership," Real Estate Bond Market Research. Salomon Brothers Inc. New York, NY. August 1987.

Downs, Anthony. The Revolution In Real Estate Finance, The Brookings Institution, Washington, DC. 1985.

Edwards, Ralph G. Jr. "Pension Funds and Real Estate: Assessing Opportunities and Risks," Real Estate Finance. Fall 1987, Volume 4, No. 3.

Elsner, Ernest T. "Progress In The Securitization of Commercial Real Estate," The Real Estate Finance Journal. Winter 1988.

Fabozzi, Frank J. Mortgage Backed Securities: New Strategies, Applications and Research. Probus Publishing, Chicago, IL. 1987.

Giliberto, Michael. "Thinking About Real Estate Risk," Real Estate Bond Market Research. Salomon Brothers Inc. New York, NY. May 26, 1989.

Hartzell, David J., Andrea Lepcio, Julia D. Fernald and Susan Jordan. "Commercial Mortgage-Backed Securities: An Investors' Primer," Bond Market Research Real Estate. Salomon Brothers Inc. New York, NY. May 1987.

Hartzell, David J. and David G. Shulman. "Real Estate Returns and Risks: A Survey," Real Estate Bond Market Research. Salomon Brothers Inc. New York, NY. February 12, 1988.

Healey, Thomas J. "Letter of Credit Serve As Passports To The Global Capital Markets," The Real Estate Finance Journal. Fall 1987.

Healey, Thomas J., Charles R. Ewald and Leslie M. Feder. "Rated Mortgage Notes: An Attractive Investment," Real Estate Finance Journal, Summer 1989.

Hemmerick, Steve. "Innovative Financings Prevail In 1987's Deals," Pensions and Investment Age. Fall 1987.

Hines, M.A. Financing Real Estate With Securities. John Wiley & Sons Inc. New York, NY. 1988.

Hubsher, Elise. "Hedging Interest Rate Risk On Fixed-Rate Financings," The Real Estate Finance Journal. Winter 1988.

Kane, Carol and Robert Weinstein. "Alternate Structures For Commercial Mortgage Securities, The Real Estate Finance Journal. Summer 1989.

Kateley, Richard. "Emerging Trends In Real Estate: 1989." Real Estate Research Corporation. Chicago, IL. November 1988.

Kehr, Rosemary C. "Rating Large Pools of Commercial Real Estate," The Real Estate Finance Journal. Spring 1989.

Lee, Christopher. "The Commercial Mortgage-Backed Securities Frontier," The Real Estate Finance Journal. Summer 1989.

Lee, Christopher and Hal Hall. "The New Frontier: Commercial Real Estate Mortgage-Backed Securities," The Journal of Real Estate Development. Fall 1988. Volume 4, No. 2.

Loeys, Jan G. "Interest Rate Swaps: A New Tool For Managing Risk," Business Review. Federal Reserve Bank of Philadelphia, May/June 1985.

Macchia, Anthony F. "The Securitization of Real Estate: Strategies For Investment Banking," Real Estate Finance Journal. Fall 1987.

Madura, Jeff and William C. Weaver. "Hedging Mortgages With Interest Rate Swaps Vs. Caps: How To Choose," The Real Estate Finance Journal. Summer 1987.

Marks, Evan M. "Rating Process For Commercial Mortgage Debt Accelerates Securitization Trend In Real Estate," The Real Estate Finance Journal. Fall 1986.

Miller, Gregory. "When Swaps Unwind," Institutional Investor. November 1986.

Misko, James A. Creative Financing of Real Estate. Institute For Business Planning, Englewood Cliffs, NJ. 1981.

Murphy, Stephen J. "Financing Opportunities Through Property Specific Commercial Mortgage Securities," Unpublished Thesis. Center For Real Estate Development, Massachusetts Institute of Technology. July 1987.

Ochs, Michael. "Creating The Perfect Hedge," Real Estate Finance. Summer 1986, Volume 3, No. 2.

Perriello, Robert, "New Real Estate Financing Methods Reflect Changes In Capital Markets," Banker and Tradesman. December 16, 1987.

Rosen, Kenneth T. "Securitization and The Mortgage Market," Real Estate Bond Market Research. Salomon Brothers Inc. New York, NY. August 1987.

Roulac, Stephen E. "Designing Real Estate Securities Products," The Real Estate Finance Journal. Summer 1989.

Shilton, Leon G. "The Snail's Pace of Commercial Debt Securitization," The Real Estate Finance Journal. Fall 1986.

Tyson, William C. "The Federal Securities Law Regulatory Environment of Mortgage-Backed Securities," The Real Estate Finance Journal. Spring 1986.

White, James A. "Salad Days End For Managing Pension Money," The Wall Street Journal. New York, NY. July 21, 1989.